Regularization/R (Q7L8)

40% (8/20)

✗ **1. In Poisson regression...**

- (A) The asymptotic distribution of the maximum likelihood estimates is multivariate normal.
- (B) The distribution of the maximum likelihood estimates is multivariate normal.
- (C) The asymptotic distribution of the maximum likelihood estimates is multivariate Poisson distribution.
- (D) I do not know

✗ **2. In the case of intercept-only model**

- (A) The mean of the dependent variable equals the exponential value of intercept
- (B) The mean of the dependent variable equals the intercept
- (C) The mean of the dependent variable equals 0
- (D) I do not know

✓ **3. ln(lambda) = 0.6 - 0.2* female [lamda = the average number of articles] Note: e^(-0.2)=0.78**

- (A) One unit increase in female brings a 0.2 decrease in ln(lambda).
- (B) Being female decreases the average number of articles by 0.78 percent
- (C) Being female decreases the average number of articles by 22%
- (D) I do not know

✓ **4. In the multiple linear regression, we assume that...**

- (A) The number of observations is much larger than the number of variables (n>>p)
- (B) The number of observations is slightly larger than the number of variables (n>p)
- (C) The number of observations equals than the number of variables (n=p)
- (D) The number of observations is lees than the number of variables (n<p)
- (E) It is not important
- (F) I do not know

✓ 5. The way of solving the problem of a large number of variables is...

- (A) Subset Selection & Shrinkage (Regularization)
- (B) Shrinkage (Regularization) & Maximum Likelihood estimation
- (C) Dimension Reduction & OLS estimation
- (D) I do not know
- (E) The absence of the right answer

✗ 6. The bias of an estimator (e.g. z^) equals...Hint: the OLS coefficients are unbias :)

- (A) E(z^) - z
- (B) E(z^2) - [E(z)]^2
- (C) [E(z^2) - E(z)]^2
- (D) E(z^2)
- (E) I do not know

✗ 7. The main idea of regularization is

- (A) To introduce a small amount of bias in order to have less variance.
- (B) To introduce a small amount of variance in order to have less bias.
- (C) To introduce a small amount of variance and bias in order to have less bias.
- (D) I do not know

✗ 8. With which function we can show regularization in R

- (A) glmnet()
- (B) regular()
- (C) lm()
- (D) glm()
- (E) I do not know

✗ 9. How the tune of any parametr can be made

- (A) using Cross validation
- (B) It is impossible
- (C) I do not now
- (D) using larger sample
- (E) only having population

✓ **10. Elastic Net is**

- (A) the combination of L1 and L2 regularization
- (B) the combination of L2 and L3 regularization
- (C) is independent from other types of refularization
- (D) I do not know
- (E) not a type of regularization

✓ **11. Regularization is used only for**

- (A) Poisson Regression
- (B) Linear Regression
- (C) Logistic Regression
- (D) any regression
- (E) I do not know

✓ **12. Regularization can solve the problem of**

- (A) heteroscedasticity
- (B) multicollinearity
- (C) autocorrelation
- (D) I do not know

✓ **13. As a result of regularization we will have**

- (A) smaller slope than in case of OLS
- (B) larger slope than in case of OLS
- (C) the slope remains the same
- (D) I do not know

✗ **14. The ridge coefficient estimates shrink towards zero**

- (A) when lambda increases
- (B) when lambda decreases
- (C) when lambda = 0
- (D) I do not know

✗ 15. Which one can shrink the slope all the way to 0?

- A Lasso
- B Ridge
- C Regression
- D I do not know

✗ 16. When lambda = 0, we have

- A Ridge
- B Lasso
- C EL
- D Regression
- E I do not know

✗ 17. When alpha = 0, we have

- A Ridge
- B Lasso
- C EL
- D Regression
- E I do not know

✓ 18. ...variables need to be incorporated in the model according to domain knowledge...

This statement is true for...

- A Ridge
- B Lasso
- C EL
- D Regression
- E I do not know

✗ 19. Which function can help to perform cross-validation for regularization in R?

- A cv.glmnet()
- B cros_val()
- C glmnet(method = "cv)
- D I do not know

20. Why we use set.seed() in R?

A To have universal result

B To perform better result

C To have random models

D I do not know